(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 September 2001 (20.09.2001)

PCT

(10) International Publication Number
WO 01/69421 A2

(51) International Patent Classification[7]: G06F 17/00

(21) International Application Number: PCT/US01/03732

(22) International Filing Date: 5 February 2001 (05.02.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/189,188 14 March 2000 (14.03.2000) US
09/557,478 24 April 2000 (24.04.2000) US

(71) Applicant: CATERPILLAR INC. [US/US]; 100 N.E. Adams Street, Peoria, IL 61629-6490 (US).

(72) Inventors: ADEN, Aubrey; 2117 Northplace Way, Smyrna, GA 30080 (US). BAUER, Bret; 100 Madissyn Ct., East Peoria, IL 61611 (US). CRAGHEAD, Robert, R.; 21 Woodford Way, Metamora, IL 61548-9220 (US). MIZANIN, Richard, J.; 320 E. Maywood St., Morton, IL 61550-2875 (US). OSBORN, Todd, A.; 304 S. Highland, Creve Coeur, IL 61610-4020 (US).

(74) Agents: KEEN, J., W. et al.; 100 N.E. Adams Street, Peoria, IL 61629-6490 (US).

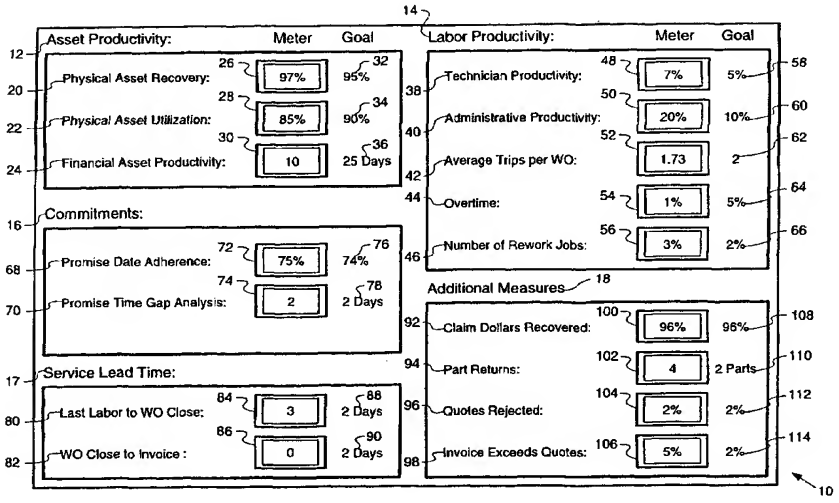
(81) Designated States *(national)*: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SYSTEM AND METHOD FOR MANAGING KEY PROCESS INDICATORS



(57) Abstract: A computer-based system and method for managing key process indicators (20, 22, 24, 38, 40, 42, 44, 46, 68, 70, 80, 82, 92, 94, 96, 98). The user enters data into the system that is representative of work that is to be performed or has been performed to service or repair a product (46). Various measurements of productivity (12, 14), such as those related to assets (12), labor (14), performance (38), and administration (40), are calculated from the entered data and subsequently displayed to the user. Each of these calculated measurements represent key process indicators as a measurement of the performance of various aspects of the service or repair business. The user can enter goal parameters for each key processor indicator, and the system flags those key processor indicators that meet, or fail to meet, the prescribed goals.

WO 01/69421 A2

Description

SYSTEM AND METHOD FOR MANAGING KEY PROCESS INDICATORS

Technical Field

This invention relates generally to systems for managing work-in-progress and, more particularly, to a computerized system and method for managing work in progress in which the user can access and extract both summarized and detailed information regarding work that has been quoted, commenced, or completed. Though not limited thereto, the present invention is particularly useful in connection with service operations, including repair service, that require timely monitoring of each of the many service tasks and jobs that may be ongoing at any particular time.

Background Art

Owners of manufacturing and service businesses have long desired to keep track of the individual work orders or jobs being built or processed through their respective operations. While many work-in-process systems have been implemented to address the challenge of smoothly managing the often diverse flow of work through a manufacturing plant or service facility, such systems often provide the user little more than a snapshot of the work-in-process. In other words, the present work-in-progress systems can advise the user the status of each of the jobs currently in process, and possibly whether or not the individual jobs are on schedule. While such systems no doubt aid the business owner in determining whether work in the particular facility is being completed timely, little management information is provided

regarding the relative efficiency of the respective operations. Also, such systems do not provide the facility manager an obvious measure that one or more aspects of the manufacturing or repair operation is outside an acceptable range.

Concurrent with the desire to meet a quoted schedule and maintain a target level of productivity, managers of both manufacturing and service businesses have recognized the need to keep track of the various costs associated with their operations and to make some meaningful sense out of those numbers in order to remain economically viable. While job cost accounting systems have been implemented to track and report the financial impact of conducting day to day business in both the manufacturing and service industries, such systems merely report results and flag financial categories that are out of limit. The user who is concerned about the reported results or exceptions must then generate additional reports or, worse yet, migrate to a separate system to attempt to ascertain the cause of the problem. Furthermore, job cost accounting systems, like many accounting systems, are inextricably tied to the prior creation of accounting data, which limits the generation of the accounting reports to whenever the last accounting data is accumulated. Also, job cost accounting systems generally report on specific periods, such as a week, a month, or a quarter, and therefore have limited flexibility to report on a desired span of time.

While work-in-process and job cost accounting systems have been applied to manufacturing and service industries, these systems as currently

available are poorly suited to the custom nature of businesses utilizing work orders, not only by the product requiring manufacturing or service, but also by virtue of the magnitude and the schedule of each work order.

The present invention is directed to overcoming one or more of the problems set forth above.

Disclosure of the Invention

In one aspect of the invention, a computer-based method for managing key process indicators is disclosed. The method begins with the entering of data that represents work that is to be performed or has been performed to service or repair a product. Various measurements of productivity, such as those related to assets, labor, performance, and administration, are calculated and subsequently displayed to the user. Each of these calculated measurements represent key process indicators as a measurement of the performance of various aspects of the service or repair business.

In another aspect of the invention, the apparatus to effect the above method for managing key process indicators is disclosed. An input device accepts data from a user that is representative of work that is to be performed or has been performed to service or repair a product. A processor, such as a personal computer, is utilized to calculate various measurements of productivity, such as those related to assets, labor, performance, and administration. The results of these calculations are presented to the user on a display screen and represent key process

indicators as a measurement of the performance of various aspects of the service or repair business. Additionally, the key process indicators can be printed as reports for the user to review.

Brief Description of the Drawings

For a better understanding of the present invention, reference may be made to the accompanying drawings in which:

Fig. 1 illustrates an examplary screen display showing key process indicators incorporating a "Dashboard" concept;

Fig. 2 is a flowchart illustrating software that determines the coloring associated with actual calculated key process indicators/meters found on the "dashboard" shown in Fig. 1;

Fig. 3 illustrates an examplary screen display showing a report layout;

Fig. 4 illustrates an examplary screen display showing a percentage of claim dollars recovered for each store within a dealership;

Fig. 5 illustrates an examplary screen display showing a percentage of claim dollars recovered for each cost center within a dealership;

Fig. 6 illustrates an examplary screen display showing a percentage of claim dollars recovered for each warranty type within a dealership;

Fig. 7 illustrates an examplary screen display showing a percentage of claim dollars recovered for each warranty type during all four quarters of a particular year;

Fig. 8 illustrates an examplary screen display showing a percentage of claim dollars recovered for each warranty type within a dealership during the first quarter of a particular year;

Fig. 9 illustrates an examplary screen display showing a percentage of claim dollars recovered for each cost center within a dealership during the first quarter of a particular year;

Fig. 10 illustrates an examplary screen display showing a percentage of claim dollars recovered for each store within a particular dealership during the first quarter of a particular year;

Fig. 11 illustrates an examplary screen display showing a percentage of claim dollars recovered within a particular dealership for all facilities and all cost centers during a particular year;

Fig. 12 illustrates an examplary screen display showing a percentage of claim dollars recovered for each warranty type within all stores for a particular dealership over a two year reporting period;

Fig. 13 illustrates an examplary screen display showing raw measurement data within each facility for a particular dealership over a two year reporting period;

Fig. 14 illustrates an examplary screen display showing raw measurement data within each facility for a particular dealership over a two year reporting period; and

Fig. 15 illustrates an examplary screen display showing raw measurement data within each facility for a particular dealership over a two year reporting period.

Best Mode for Carrying Out the Invention

In the following detailed description numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those skilled in the art that the present invention may be practiced without these specific details. For example, the invention is not limited in scope to the particular type of industry application depicted in the figures, a particular type of software language, or to particular conventions regarding software designations. In other instances, well-known methods, procedures, and components have not been described in detail so as not to obscure the present invention.

Referring now to the drawings, and initially to Fig. 1, which depicts an embodiment of an image presented as a screen display being processed according to the present invention illustrating the key process indicators hereinafter referred to as a "dashboard." This dashboard is generally indicated by numeral 10. The screen display can include any type of display that displays information including cathode ray tube, liquid crystal display, among numerous other types of electronic displays. The key process indicators in the form of a dashboard 10 is a tool to give an overall representation of the ability of an organization to meet its various goals. In Fig. 1,

representative examples of categories of key process indicators can include, but are not limited to, asset productivity 12, labor productivity 14, commitments 16, and additional measures 18. Underneath the categories of key process indicators are the actual key process indicators. These key process indicators are based on representative data entered into an input device for work being performed to manufacture a product or provide a service. Representative data may also be entered in increasing detail, for example, by region, entity (e.g., dealer), facility (e.g., store), and cost center as well as by year, month, week, and day. Nonlimiting examples that could fall underneath the category of asset productivity 12 might include physical asset recovery 20, physical asset utilization 22, and physical asset productivity. Next to each key process indicator 20, 22, and 24 is the actual calculated key process indicator or meter 26, 28, and 30, respectively, as well as the appropriate key process indicator goal 32, 34, and 36, respectively.

Nonlimiting examples that could fall underneath the category of labor productivity 14 might include technician productivity 38, administrative productivity 40, average trips per work order 42, overtime 44, and number of rework jobs 46. Next to each key process indicator 38, 40, 42, 44 and 46 is the actual calculated key process indicator or meter 48, 50, 52, 54 and 56, respectively, as well as the appropriate key process indicator goal 58, 60, 62, 64 and 66, respectively.

Nonlimiting examples that could fall underneath the category of commitments 16 might

include promise date adherence 68 and promise time gap analysis 70. Next to each key process indicator 68 and 70 is the actual calculated key process indicator or meter 72 and 74, respectively, as well as the appropriate key process indicator goal 76 and 78, respectively.

Nonlimiting examples that could fall underneath the category of service lead time 17 might include last labor to work order close 80 and work order close to invoice 82. Next to each key process indicator 80 and 82 is the actual calculated key process indicator or meter 84 and 86, respectively, as well as the appropriate key process indicator goal 88 and 90, respectively.

Nonlimiting examples that could fall underneath the category of additional measures 18 might include claim dollars recovered 92, part returns 94, quotes rejected 96, and invoice exceeds quote 98. Next to each key process indicator 92, 94, 96 and 98 is the actual calculated key process indicator or meter 100, 102, 104 and 106, respectively, as well as the appropriate key process indicator goal 108, 110, 112 and 114, respectively.

The above described key process indicators are merely examples and would differ greatly depending the specific type of manufacturing or service application.

After the appropriate goal data for the key process indicator is entered the actual key process indicator is calculated by a computer. The computer can include, but is not limited to, a processor such as a microprocessor, however, any of a wide variety of

computing devices will suffice. The processor preferably includes, but is not limited to, a memory device and a clock, and is representative of both floating point processors, and fixed point processors.

The dashboard software will now be discussed with reference to Fig. 2, which depicts a flowchart representative of the computer program instructions executed by the computer and is generally indicated by numeral 120. A programmer skilled in the art could utilize this flowchart to program any of a wide variety of electronic computers/processors in a wide variety of programming languages. In the description of the flowchart, the functional explanation marked with numerals in angle brackets, <nnn>, will refer to the flowchart blocks bearing that number. As shown in Fig. 2, the program first calculates the key process indicator <130>. The actual calculation, of course, is done differently based upon the category and key process indicator. For example, the key process indicator overtime 44 of category labor productivity 14 reflects, as a percentage, the total number of overtime hours worked within the reporting period and is calculated by dividing the number of overtime hours worked by the number of total hours worked. Other key process indicators are calculated using varying mathematical methods and formulas.

After the step of calculating the key process indicator, the program next determines actual calculated key process indicator or meter color by comparing the pre-set goal data against each corresponding calculated key process indicator for quick visual indication of whether a goal is being

met. As shown in Fig. 2, the highlight color determination is initially done by ascertaining whether the calculated key process indicator is above the set performance goal level <140>. If the calculated key process indicator is above the performance goal level the calculated key process indicator or meter, such as that shown by numeral 26, is designated to be highlighted in a first color, such as green <150>. If the calculated key process indicator is below the performance goal level the program next determines whether the calculated key indicator is between a performance goal level and a lower noncompliance level <160>. If the calculated key process indicator is within this range the calculated key process indicator or meter, such as that shown by numeral 28, is designated to be highlighted in a second color, such as yellow <170>. If the calculated key performance indicator is not between a performance goal level and a lower noncompliance level, the program next determines whether the calculated key process indicator is below a lower noncompliance level <180>. If the calculated key process indicator is below a lower noncompliance level the calculated key process indicator or meter, such as that shown by numeral 30, is designated to be highlighted in a third color, such as red <190>. The program then returns to step <130> and re-calculates the key process indicator and repeats the entire process again.

Returning to Fig. 1, then, the actual calculated key process indicator or meter 26, 28, 30, 48, 50, 52, 54, 56, 72, 74, 84, 86, 100, 102, 104, and 106 is displayed by the output device, e.g., screen

display, with a corresponding highlighted color based on the calculated key process indicator <130>. Further, although not shown in Fig. 1, the key process indicator or meter 20, 22, 24, 38, 40, 42, 44, 46, 68, 70, 80, 82, 92, 94, 96, and 98 can also be displayed with a corresponding highlighted color together with, or without, the corresponding actual calculated key process indicator or meter. Again, the information highlighted in a first color, such as green, indicates the performance goal is being attained. The information highlighted in a second color, such as yellow, indicates a caution area. The measurement goal is not being met, however, it is close to being met. The information highlighted in a third color, such as red, indicates that the measurement is not being met.

In another embodiment of the present invention, the capability of accessing multiple individual reports from the dashboard is provided by selecting the appropriate key process indicator or meter button. For example, Fig. 3 depicts an example of an image illustrating a report layout for the claim dollars recovered key process indicator 92. This report is accessed by selecting the actual calculated claim dollars recovered key process indicator or meter button 100 in Fig. 1. The resulting display layout, as generally indicated by numeral 200 in Fig. 3, includes, but is not limited to, title 202, graph 204, data area 206, and summary 206 features. The title feature 202 displays the report title and the date and time that the report data represents. The graph feature 204 displays a graphical representation of the data. In the preferred embodiment, this graph can be

changed into other various graph-types (i.e., line graph, bar chart, etc.). The data area feature 206 displays, in this example, the actual report data for the claim dollars recovered key process indicator 92. The data area feature 206 also provides the capability to "drill down" and report data at various distinct levels. For example, the report shown in Fig. 3 represents the percentage of claim dollars recovered for dealership ABC Industries. By clicking in the column area 210 for ABC Industries one can "drill down" to view data at the "lower" store level (i.e., for ABC Industries stores in Chicago, Peoria, St. Louis, and Eureka), as shown in Fig. 4, for example. The summary line feature 208 displays the data over the entire time period, in this example 1999 through year to date 2000.

As previously explained, by clicking on the column for ABC Industries in Fig. 3, one can "drill down" to view more detailed data about each store within dealership ABC Industries, as generally indicated by numeral 250 in Fig. 4. As a result, Fig. 4 illustrates the percentage of claim dollars recovered for each store within dealership ABC Industries. More particularly, the Chicago, Peoria, St. Louis, and Eureka stores make up the percentage of claim dollars for ABC Industries. Notably, the claim dollars recovered key performance indicator reflects, as a percentage, the amount of claims recovered for the reporting period and is calculated by dividing the settlement dollars received for claims within the reporting period by the claim dollars submitted. Fig. 4 further illustrates a pie graph 260 which

automatically changes to reflect the corresponding level of detail shown in data area 270. To further "drill down" to view data for each cost center within store 'Eureka', the user can click on the store Eureka column, as generally indicated by numeral 280, thereby accessing, in the hierarchy of available displays, data immediately "below" the present display. The resulting display is generally indicated by numeral 300 in Fig. 5.

In Fig. 5, then, the percentage of claim dollars recovered for each cost center within store Eureka is illustrated. More particularly, the Main Shop, Specialization, and Track Shop cost centers make up the percentage of claim dollars recovered for the Eureka store. Fig. 5 further illustrates a pie graph 310 which reflect the corresponding level of detail shown in data area 320. As explained previously, the color highlighting the key process indicator in the summary area feature depicts the closeness of meeting particular goals. Overall, the Eureka store is very close to meeting its claim dollars recovered goal of 96%, as shown in cell 325, and thus is highlighted in yellow. The Main Shop cost center has clearly exceeded the pre-set goal, as shown in cell 330, and thus is highlighted in green whereas the Specialization cost center is close to meeting the pre-set goal, as shown in cell 335, and thus is highlighted in yellow. However, the Track Shop cost center appears to be performing well below the pre-set goal, as shown in cell 340, and thus is highlighted in red. To further "drill down" to view the data for each warranty type used within cost center Track Shop, the user can

select the cost center Track Shop column, as generally indicated by numeral 350, thereby accessing, in the hierarchy of displays, the display immediately "below" the present display. The resulting display is generally indicated by numeral 400 in Fig. 6.

In Fig. 6, then, the percentage of claim dollars recovered for each warranty type within cost center Track Shop, store Eureka, dealership ABC Industries is depicted. More particularly, the Standard or "STD" and "PSP" warranty types make up the percentage of claim dollars recovered for the Track Shop cost center. In this depiction, it is obvious that the cost center Track Shop is declining on STD and PSP warranty types goals, as shown by cells 410, 420, and 430 which are highlighted in red. Further investigation is likely desired to pinpoint the root cause of the problem. Accordingly, to further "drill down" and view the data for each warranty type used within cost center Track Shop during each quarter of 1999 the user can select the '1999' row, as generally indicated by numeral 440. This step will access, in the hierarchy of displays, a display immediately "below" the present display. The resulting display is generally indicated by numeral 450 in Fig. 7.

In Fig. 7, then, the percentage of claim dollars recovered for warranty types 'STD' and 'PSP' within the Track Shop cost center, Eureka store, dealership ABC Industries during all 1999 quarters is illustrated. More particularly, each quarter in 1999 make up the percentage of claim dollars recovered for the STD and PSP warranty types in year 1999. It is clear that the first quarter of 1999 contains one of

the lower percentages of claim dollars recovered by warranty types STD and PSP. To further identify the problem, therefore, a user can select to "drill down" to view the data for each warranty type within cost center Track Shop during each month of the first quarter of 1999 by selecting the '1999 Q1' row, as generally indicated by numeral 460. Notably, if there was no data available for the warranty type during the time frame, a zero value is displayed (/0). By selecting the '1999 Q1' row, as indicated by numeral 460, the data for each warranty type used within cost center Track Shop during each month of the first quarter of 1999 will be depicted, as shown generally by numeral 480 in Fig. 8. Beside being able to illustrate week and day figures, this interface screen is the lowest level of display in the hierarchy of displays and thus presents to the problem at the most detailed level based on the entered representative data.

The "drill up" capabilities of the software will now be discussed with reference to Fig. 8, which, again, depicts the percentage of claim dollars recovered for each warranty type within dealership ABC Industries, store Eureka, cost center Track Shop during the first quarter months of 1999 and is generally indicated by numeral 480. More particularly, "drill up" capabilities can be shown by selecting the Track Shop column as generally indicated by numeral 490. By doing so, the user can now view store Eureka and all cost centers within Eureka, as generally shown by numeral 500 in Fig. 9. Similarly, by selecting the Eureka column, as generally indicated by numeral 510,

the user may view all stores within ABC Industries during the first quarter of 1999, as generally indicated by numeral 530 in Fig. 10. Thus, in Figs. 8-10, "drill up" capabilities, in the hierarchy of displays, provide access to the display immediately "above" a preceding display.

It can be seen, accordingly, that in the present invention, a hierarchy of displays is created where the calculated key process indicators displayed at each hierarchical level are calculated from the key process indicators from the next lower hierarchical level. The creation of a hierarchy of display, then, requires the ability to access a display immediately above the present display as well as the display immediately below the present display in the hierarchy. Additionally, it will be appreciated that each key process indicator has a varying structure and level of hierarchical detail based upon how each key process is calculated and measured. For example, unlike the hierarchy of display governing claim dollars recovered, as explained above, the hierarchy of displays for technician productivity 38 in the category labor productivity 14 depicts hierarchical detail to each technician in each technical field on a daily basis. Consequently, no matter what type of key process indicator is measured or managed, the present invention can judiciously monitor and report how the various aspects of a service or repair business is operating.

Additional multi-functional reporting of the program will now be described in association with Fig. 11. Fig. 11 illustrates the percentage of claim

dollars recovered within dealership ABC Industries, all stores, and all cost centers during the 1999 year. A user's reporting needs can be completely satisfied by providing the capability of manipulating all data in multiple ways. In this examplary interface screen, as generally depicted by numeral 550, instead of showing the data for an individual store during a specific time period, the user can create a crosstab, as generally shown by numeral 560, showing the percentage of claim dollars for each cost center within each dealer store. Likewise, a user can create a crosstab, as generally depicted by numeral 570 in Fig. 12, showing the percentage of claim dollars for each warranty type within each of the dealer's stores. Similarly, as shown generally by numeral 590 in Fig. 13, a user can organize an interface screen or display to illustrate the raw measurement data within each store for dealership ABC Industries' over the 1999-2000 reporting period. Thus, Fig. 13 illustrates a report displaying (for each store within the dealership) the key performance indicators for the category additional measures 18, which include, as shown generally by numeral 600, the claim dollars recovered key performance indicator 92 as well as the factors used in calculating the key performance indicator claim dollars recovered 92, which include, total settlement dollar amount and the total claim dollars submitted. Alternatively, as generally shown by numeral 610 in Fig. 14, the user can modify the first row of the data area feature to view all cost centers within all stores within the dealership ABC Industries, as indicated by numeral 620. Also, the

information depicted as a bar graph in Fig. 14 can be shown as a bar graph as indicated by numeral 630 in Fig. 15. Again, this additional multi-functional reporting capability provides the user with ability to deeply probe dealer data for efficient management of strategic business related goals.

While certain features of the invention have been illustrated as described herein, many modifications, changes and equivalents will now occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the invention.

Industrial Applicability

In view of the foregoing, the present invention is advantageously applicable to monitor and report how the various aspects of a service or repair business is operating. The user enters the data regarding various work orders that have been bid or accepted for work. Targeted goal data is also entered relative to the desired efficiency and productivity of the work site. The system then calculates and displays to the user at a multitude of levels how the business is operating and how close the business is coming to achieving the targeted goals. The user can drill down through any display to subsequently display the detail information that the system used to calculate the original display.

Other aspects, objects, and advantages of the present invention can be obtained from a study of the drawings, the disclosure, and the appended claims.

Claims

1. A computer-based method for managing key process indicators (20,22,24,38,40,42,44,46,68,70,80,82,92,94,96,98), the method comprising:

entering data representative of work being performed;

calculating measures of productivity from said representative data; and

displaying to a user at least one of said calculated measures of productivity, wherein said measures of productivity comprise key process indicators.

2. The computer-based method of claim 1, wherein said measures of productivity include asset (12), labor (14), performance, and administrative (40).

3. The computer-based method of claim 1, wherein said work being performed includes work being performed to service or repair a product.

4. The computer-based method of claim 1, wherein said representative data may be entered in increasing detail by region, dealer, store, and cost center; and by year, month, week, and day.

5. The computer-based method of claim 1, wherein the step of displaying includes the step of creating a hierarchy of displays wherein said calculated key process indicators displayed at each

hierarchical level are calculated from the key process indicators from the next lower hierarchical level.

6. The computer-based method of claim 5, wherein the lowest level of display in said hierarchy of displays presents to the user at least part of said entered representative data.

7. The computer-based method of claim 6, wherein the step of creating a hierarchy of displays includes the step of accessing the display immediately above the present display in said hierarchy and the step of accessing the display immediately below the present display in said hierarchy.

8. The computer-based method of claim 5, further including the step of entering goal data for each of said key process indicators(20,22,24,38,40,42, 44,46,68,70,80,82,92,94,96,98).

9. The computer-based method of claim 8, including the step of comparing said goal data against each corresponding said key performance indicator to determine whether the goals representative of said goal data are being met.

10. The computer-based method of claim 9, wherein said step of displaying includes the step of displaying each said key performance indicator in one of a first (150), second (170), or third (190) color, wherein:

said first color (150) represents a key performance indicator whose goal is being met;

said second color (170) represents a key performance indicator whose goal is close to, but not, being met; and

said third color (190) represents a key performance indicator whose goal is not being met.

11. A computer-based method for managing key process indicators (20,22,24,38,40,42,44,46,68,70,80,82,92,94,96,98), the method comprising:

entering data representative of work being performed;

calculating one or more key process indicators indicators (20,22,24,38,40,42,44,46,68,70,80,82,92,94,96,98); and

displaying to a user said one or more calculated key process indicators.

12. The computer-based method of claim 11, wherein said key process indicators(20,22,24,38,40,42,44,46,68,70,80,82,92,94,96,98) are selected from the group consisting of a measure of asset productivity (12), a measure of labor productivity (14), a measure of performance productivity (38), and a measure of administrative productivity (40).

13. The computer-based method of claim 11, wherein said work being performed includes work being performed to service or repair a product (46).

14. A computer-based system for managing key process indicators (20,22,24,38,40,42,44,46,68,70,80,82,92,94,96,98), comprising:

an input device for entering data representative of work being performed to service or repair a product (46);

a processor for calculating each of a measures of productivity (12,14) from said representative data; and

an output device for generating a display of at least one of said calculated measures of productivity, wherein said measures of productivity comprise key process indicators.

15. The computer-based system of claim 14, wherein said measures of productivity include asset (12), labor (14), performance (38), and administrative (40).

16. The computer-based system of claim 14, wherein said work being performed includes work being performed to service or repair a product (46).

17. The computer-based system of claim 14, wherein said input device accepts data in increasing detail by region, dealer, store, and cost center (210); and by year, month, week, and day (460).

18. The computer-based system of claim 14, wherein said output device displays a hierarchy of displays wherein said calculated key process indicators displayed at each hierarchical level are

calculated from the key process indicators from the next lower hierarchical level.

19. The computer-based system of claim 18, wherein said output device displays at least part of said entered representative data at the lowest level of display in said hierarchy of displays.

20. The computer-based system of claim 19, wherein said output device presents to the user the display immediately above the present display in said hierarchy and further presents to the user the display immediately below the present display in said hierarchy.

21. The computer-based system of claim 18, wherein said input device further accepts the entry of goal data (32,34,36,58,60,62,64,66,76,78,88,90,108, 110,112,114) for each of said key process indicators.

22. The computer-based system of claim 21, wherein said processor further compares said goal data against each corresponding said key performance indicator to determine whether the goals representative of said goal data are being met.

23. The computer-based system of claim 22, wherein said output device further generates a display of each said key performance indicator in one of a first (150), second (170), or third (190) color, wherein:

said first color (150) represents a key performance indicator whose goal is being met;

said second color (170) represents a key performance indicator whose goal is close to, but not, being met; and

said third color (190) represents a key performance indicator whose goal is not being met.

24. A computer-based system for managing key process indicators, comprising:

an input device (10) for entering data representative of work being performed;

a processor for calculating one or more key process indicators (20,22,24,38,40,42,44,46,68,70,80,82,92,94,96,98); and

an output device (200) for generating a display of said calculated key process indicators.

25. The computer-based system of claim 24, wherein said key process indicators (20,22,24,38,40,42,44,46,68,70,80,82,92,94,96,98) are selected from the group consisting of a measure of asset productivity (12), a measure of labor productivity (14), a measure of performance productivity (38), and a measure of administrative productivity (40).

26. The computer-based method of claim 24, wherein said work being performed includes work being performed to service or repair a product.

FIG. 1

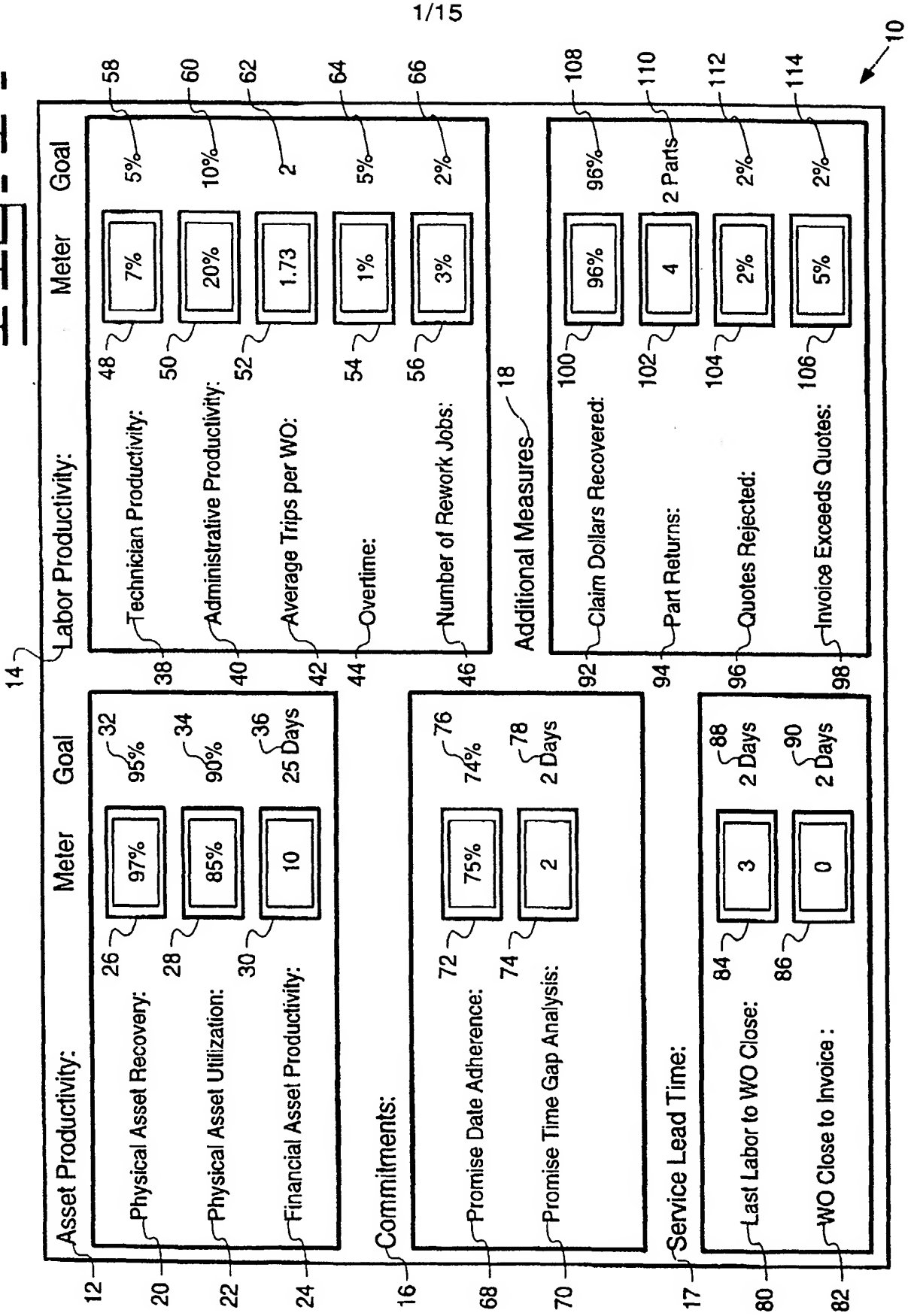

10
14
Asset Productivity:
Meter
Goal
Physical Asset Recovery:
97%
95%
Physical Asset Utilization:
85%
90%
Financial Asset Productivity:
10
25 Days
Commitments:
Promise Date Adherence:
75%
74%
Promise Time Gap Analysis:
2
2 Days
Service Lead Time:
Last Labor to WO Close:
3
2 Days
WO Close to Invoice :
0
2 Days
Labor Productivity:
Meter
Goal
Technician Productivity:
7%
5%
Administrative Productivity:
20%
10%
Average Trips per WO:
1.73
2
Overtime:
1%
5%
Number of Rework Jobs:
3%
2%
Additional Measures
Claim Dollars Recovered:
96%
96%
Part Returns:
4
2 Parts
Quotes Rejected:
2%
2%
Invoice Exceeds Quotes:
5%
2%
12
16
17
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114

Fig. 2

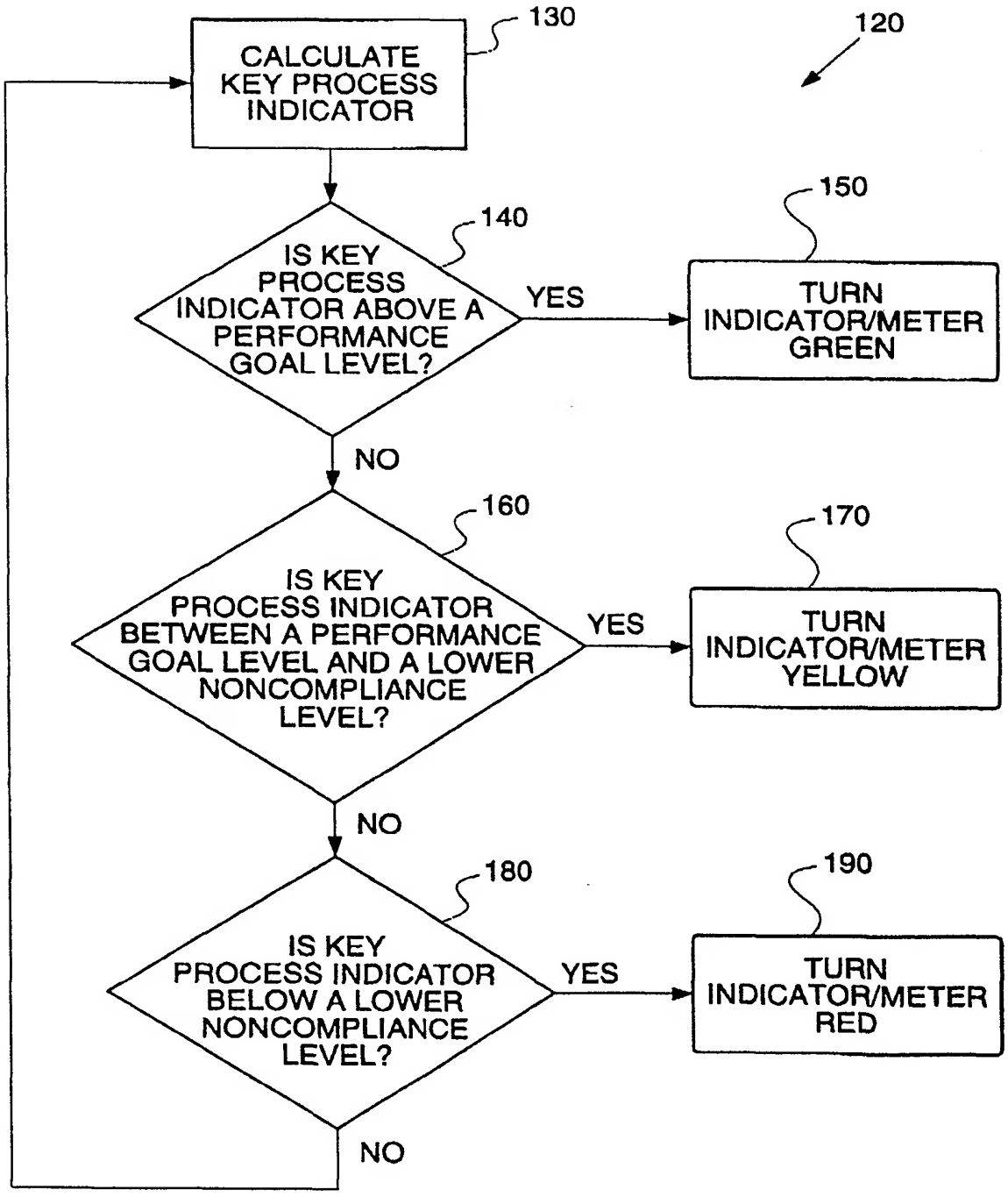

120
130
CALCULATE KEY PROCESS INDICATOR
140
IS KEY PROCESS INDICATOR ABOVE A PERFORMANCE GOAL LEVEL?
YES
150
TURN INDICATOR/METER GREEN
NO
160
IS KEY PROCESS INDICATOR BETWEEN A PERFORMANCE GOAL LEVEL AND A LOWER NONCOMPLIANCE LEVEL?
YES
170
TURN INDICATOR/METER YELLOW
NO
180
IS KEY PROCESS INDICATOR BELOW A LOWER NONCOMPLIANCE LEVEL?
YES
190
TURN INDICATOR/METER RED
NO

FIG-3-

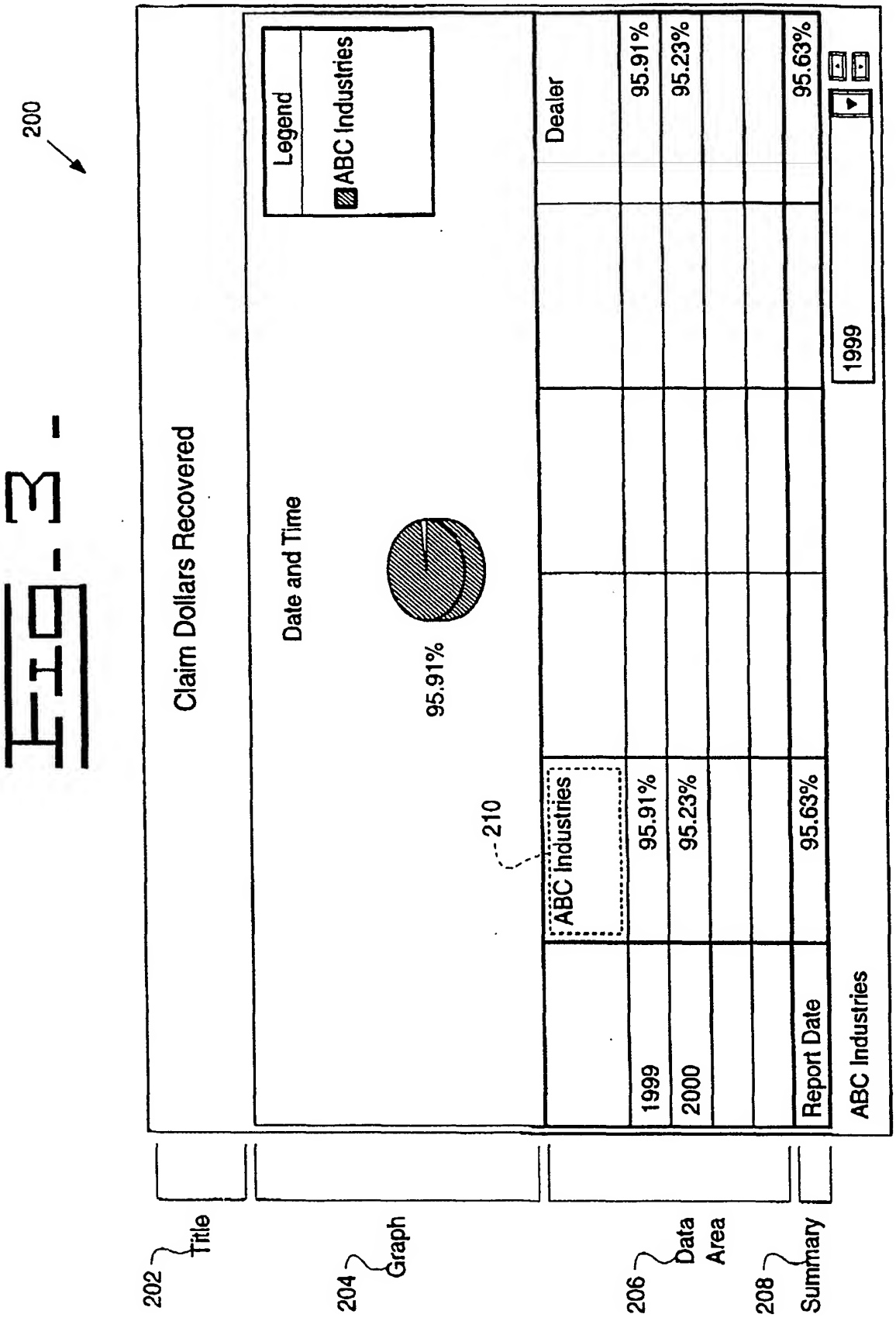

200
Claim Dollars Recovered
Legend
ABC Industries
Date and Time
95.91%
210
Dealer
95.91%
95.23%
95.63%
1999
ABC Industries
1999
95.91%
2000
95.23%
Report Date
95.63%
ABC Industries
202 Title
204 Graph
206 Data Area
208 Summary

Fig-4-

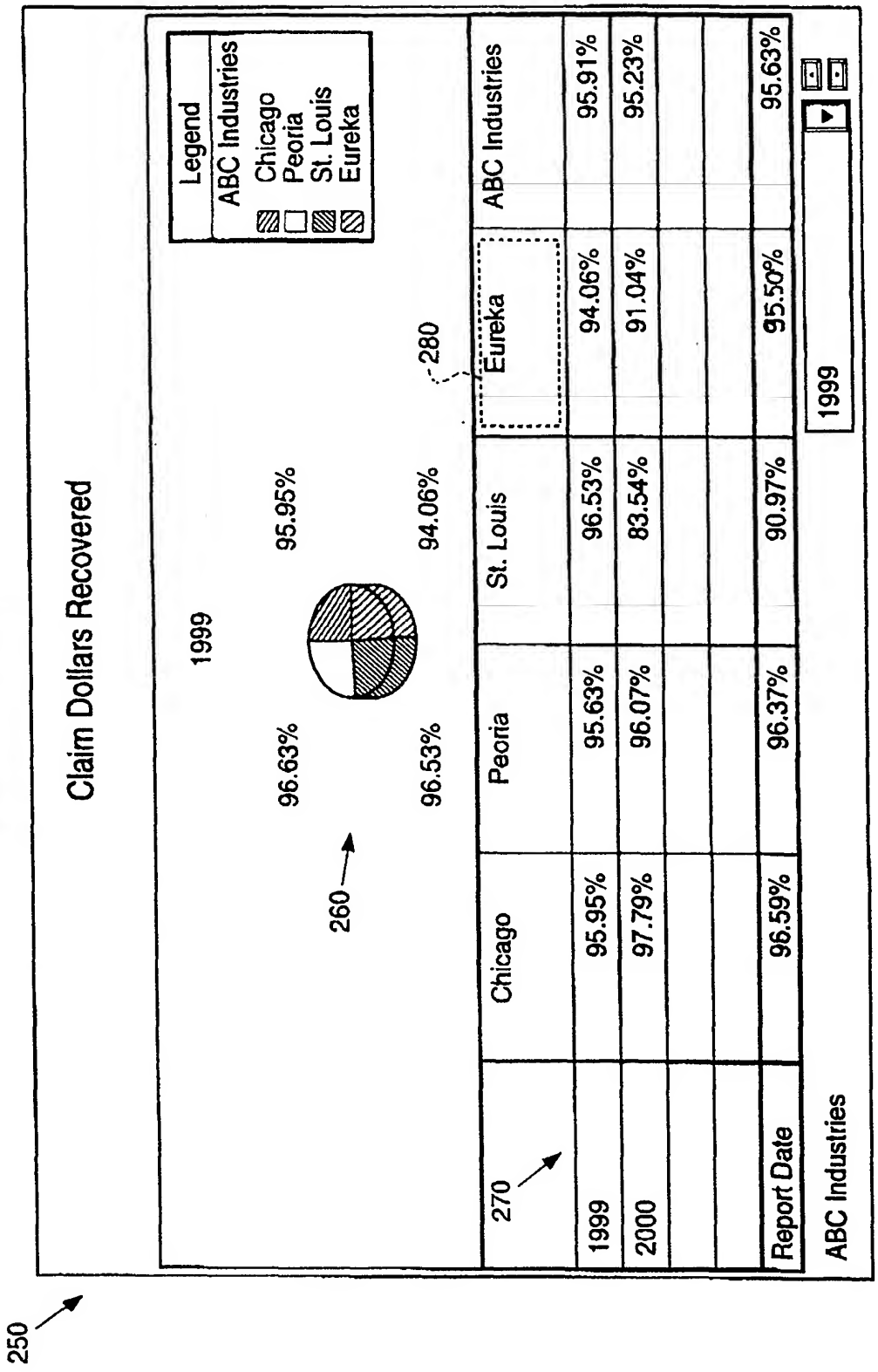

250
Claim Dollars Recovered
Legend
ABC Industries
Chicago
Peoria
St. Louis
Eureka
1999
96.63%
95.95%
96.53%
94.06%
260
280
270
Chicago
Peoria
St. Louis
Eureka
ABC Industries
1999
95.95%
95.63%
96.53%
94.06%
95.91%
2000
97.79%
96.07%
83.54%
91.04%
95.23%
Report Date
96.59%
96.37%
90.97%
95.50%
95.63%
1999
ABC Industries

Fig. 5

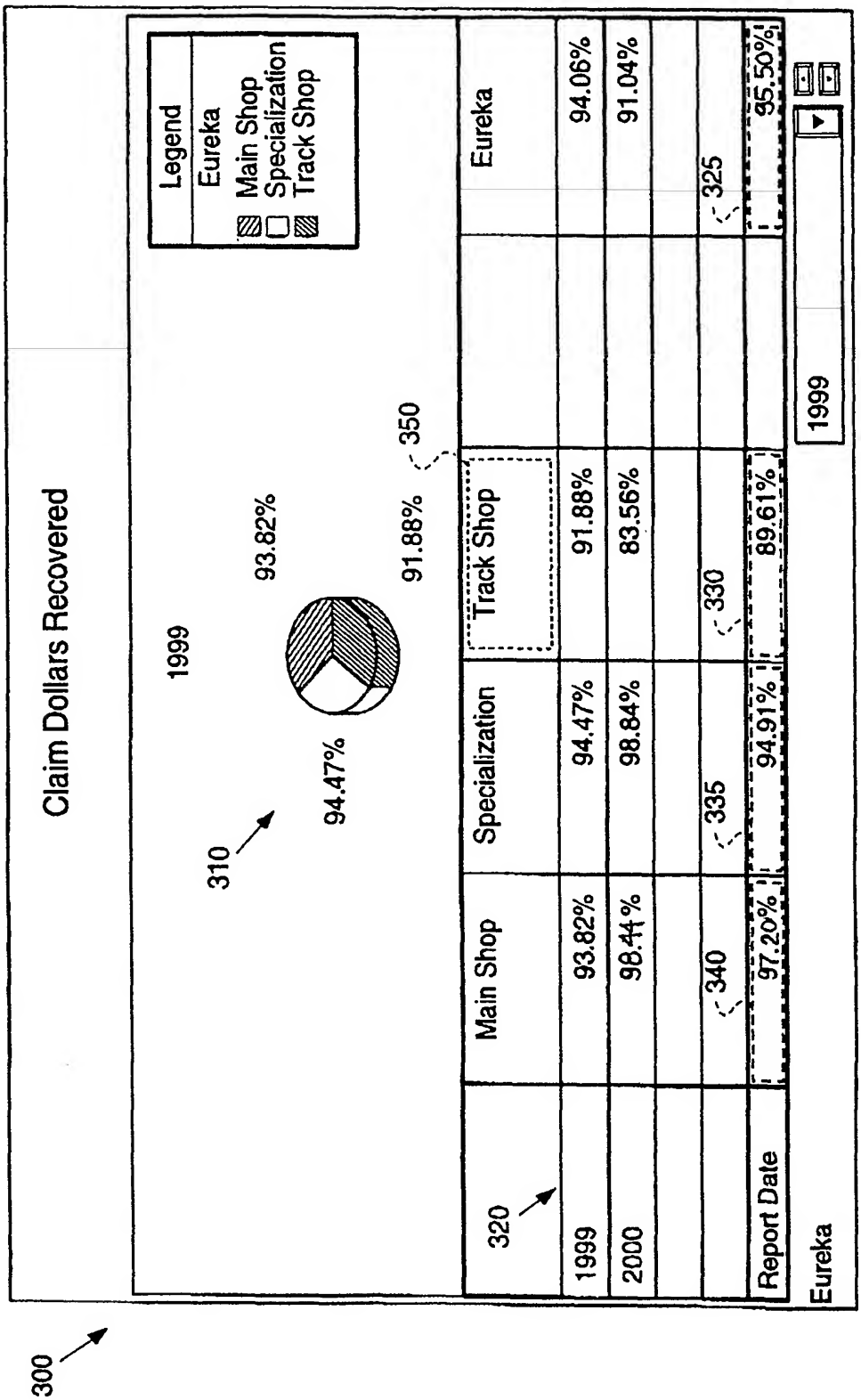

300
Claim Dollars Recovered
Legend
Eureka
Main Shop
Specialization
Track Shop
1999
310
93.82%
94.47%
91.88%
350
320
Main Shop
Specialization
Track Shop
Eureka
1999
93.82%
94.47%
91.88%
94.06%
2000
98.44%
98.84%
83.56%
91.04%
340
335
330
325
Report Date
97.20%
94.91%
89.61%
95.50%
Eureka
1999

Fig. 6

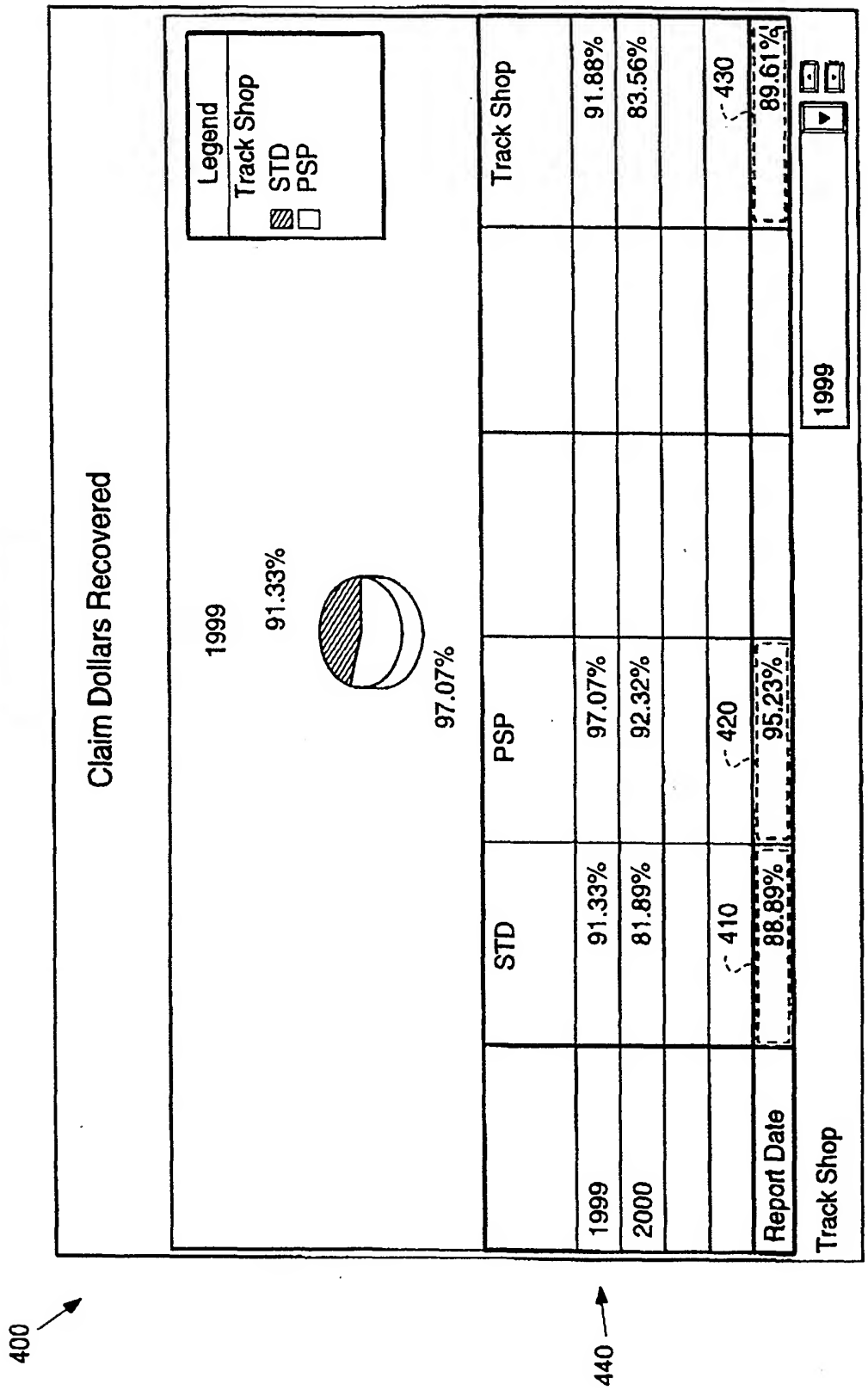

Claim Dollars Recovered
1999
91.33%
97.07%
Legend
Track Shop
STD
PSP
Track Shop
STD
PSP
1999
91.33%
97.07%
91.88%
2000
81.89%
92.32%
83.56%
410
420
430
Report Date
88.89%
95.23%
89.61%
1999
Track Shop
400
440

Fig. 7

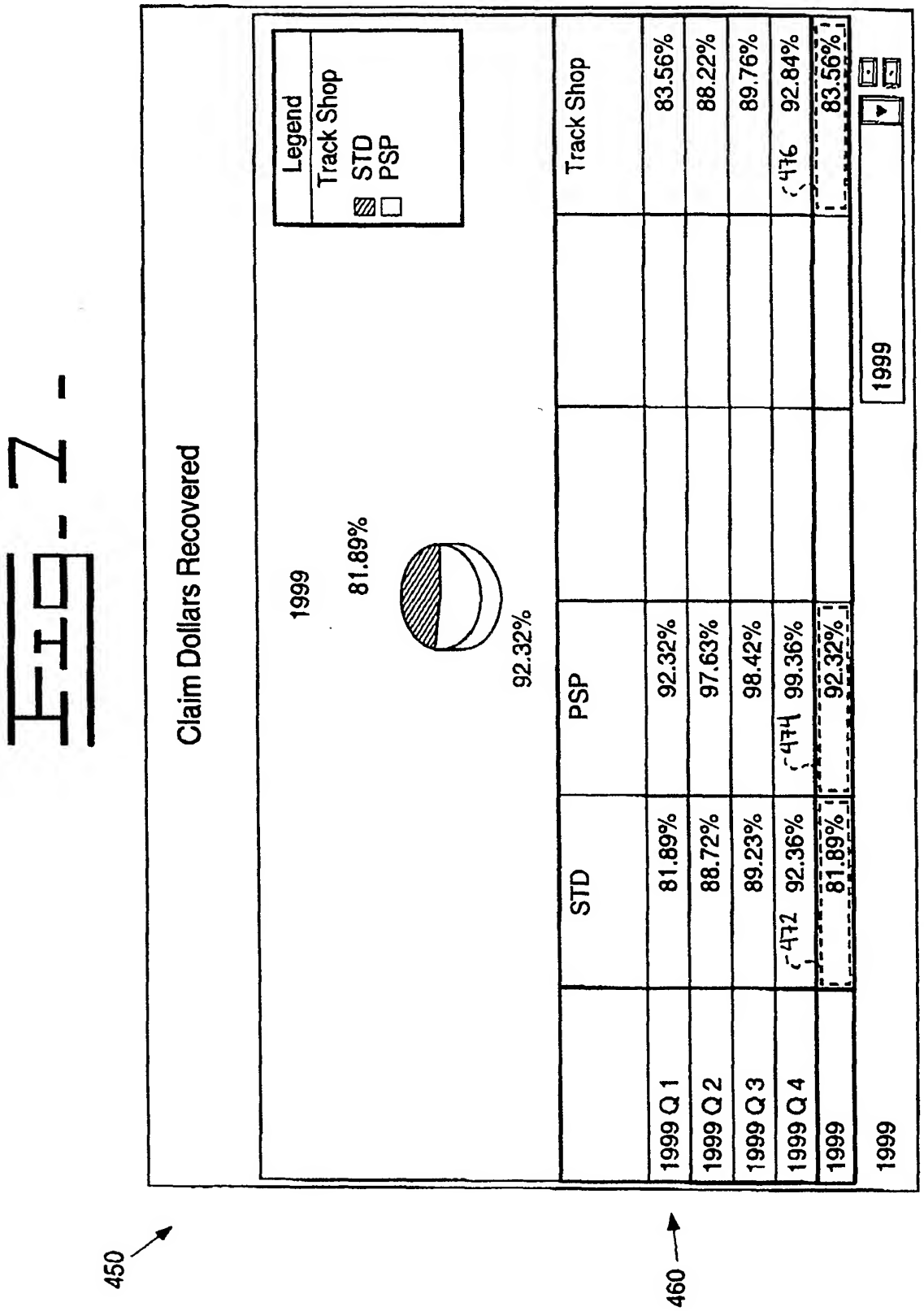

Claim Dollars Recovered
Legend
Track Shop
STD
PSP
1999
81.89%
92.32%
Track Shop
STD
PSP
1999 Q 1 81.89% 92.32% 83.56%
1999 Q 2 88.72% 97.63% 88.22%
1999 Q 3 89.23% 98.42% 89.76%
1999 Q 4 92.36% 99.36% 92.84%
1999 81.89% 92.32% 83.56%
1999
1999
450
460

FIG. 8

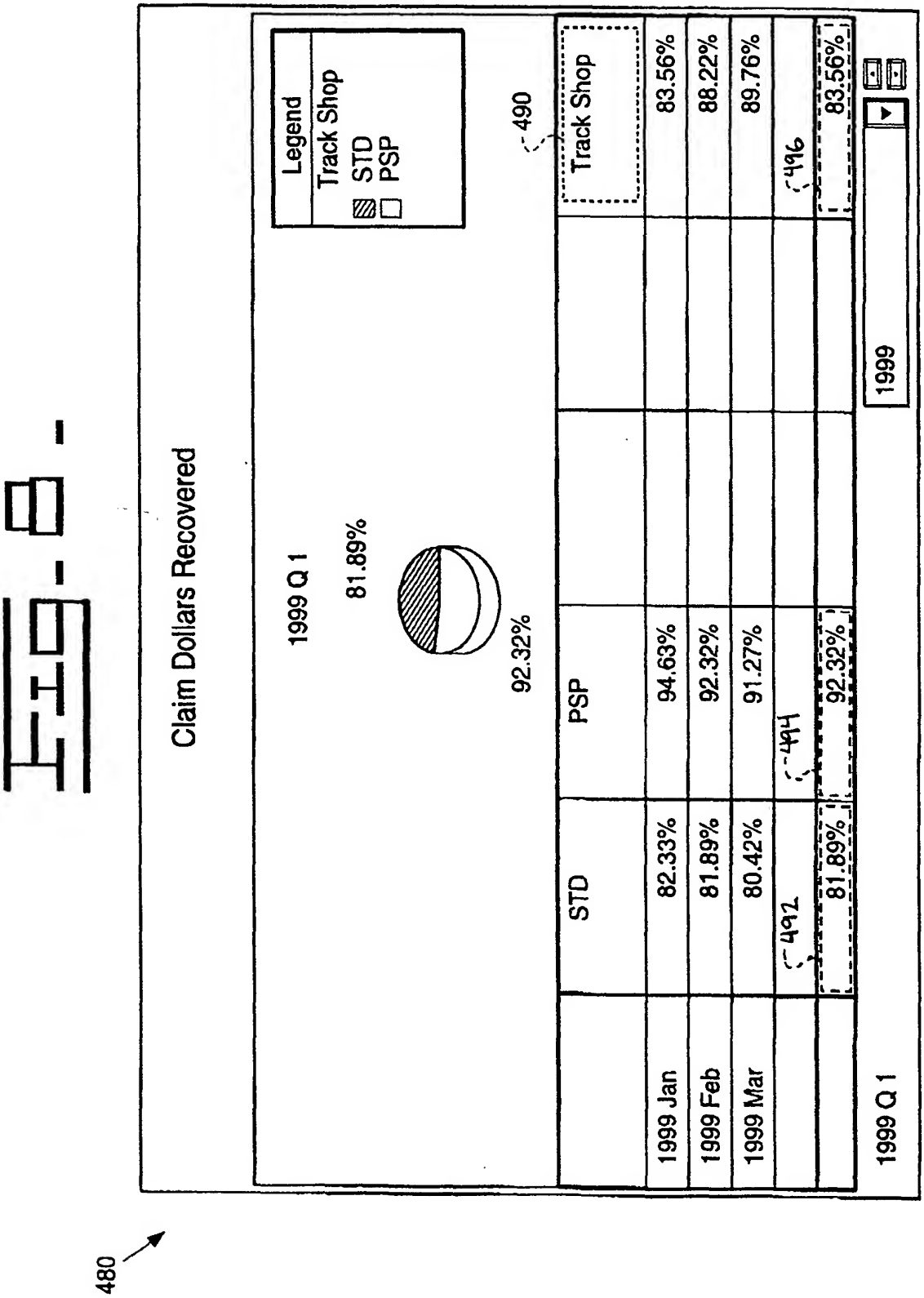

480
Claim Dollars Recovered
1999 Q 1
81.89%
92.32%
Legend
Track Shop
STD
PSP
490
STD
PSP
Track Shop
1999 Jan
82.33%
94.63%
83.56%
1999 Feb
81.89%
92.32%
88.22%
1999 Mar
80.42%
91.27%
89.76%
492
494
496
81.89%
92.32%
83.56%
1999 Q 1
1999

FIG. 9

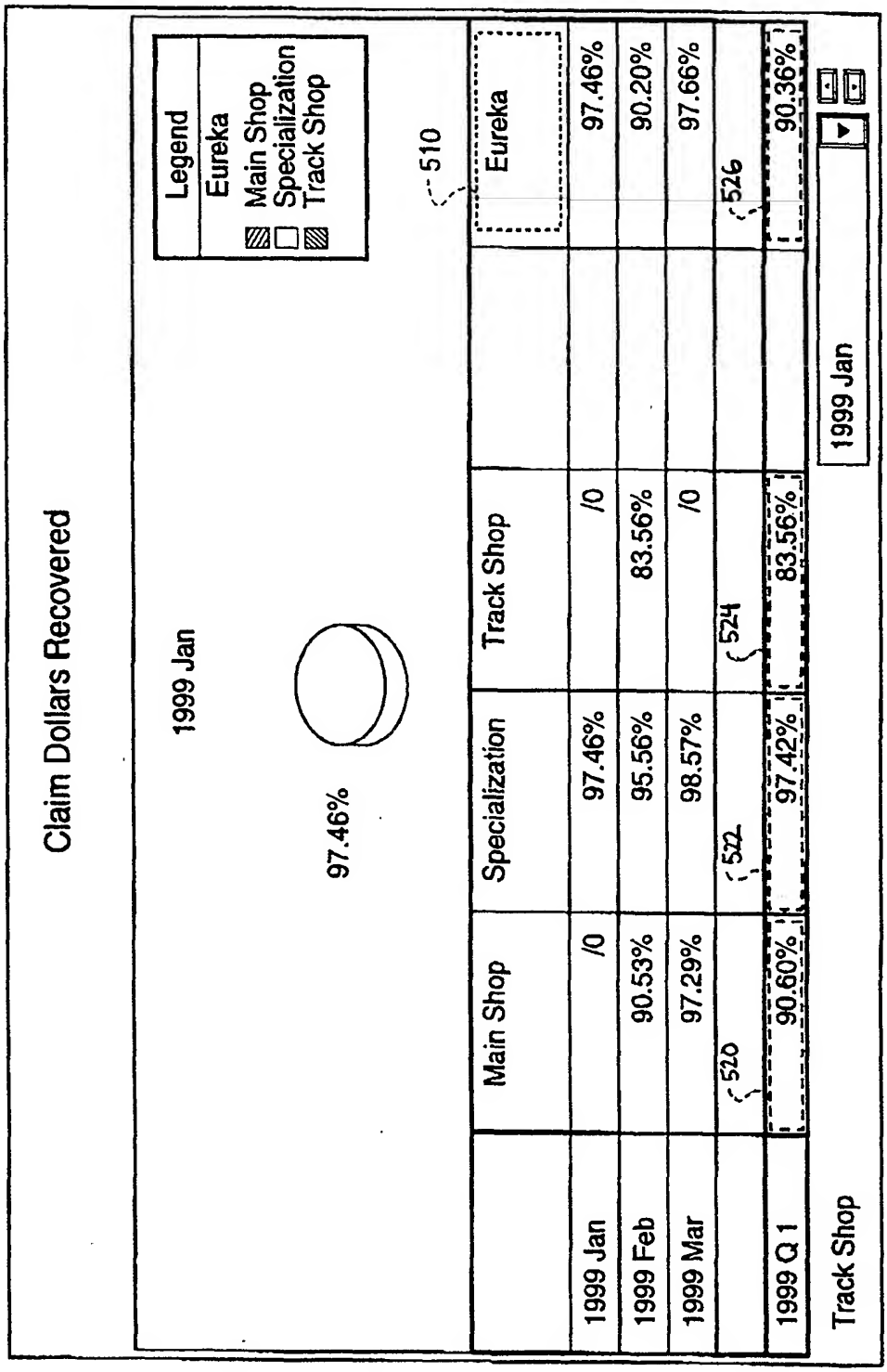

500
Claim Dollars Recovered
1999 Jan
97.46%
Legend
Eureka
Main Shop
Specialization
Track Shop
510
Eureka
97.46%
526
90.36%
1999 Jan
Track Shop
Main Shop
Specialization
Track Shop
1999 Jan
/0
97.46%
/0
1999 Feb
90.53%
95.56%
83.56%
90.20%
1999 Mar
97.29%
98.57%
/0
97.66%
520
522
524
526
1999 Q 1
90.60%
97.42%
83.56%
90.36%

FIG-10-

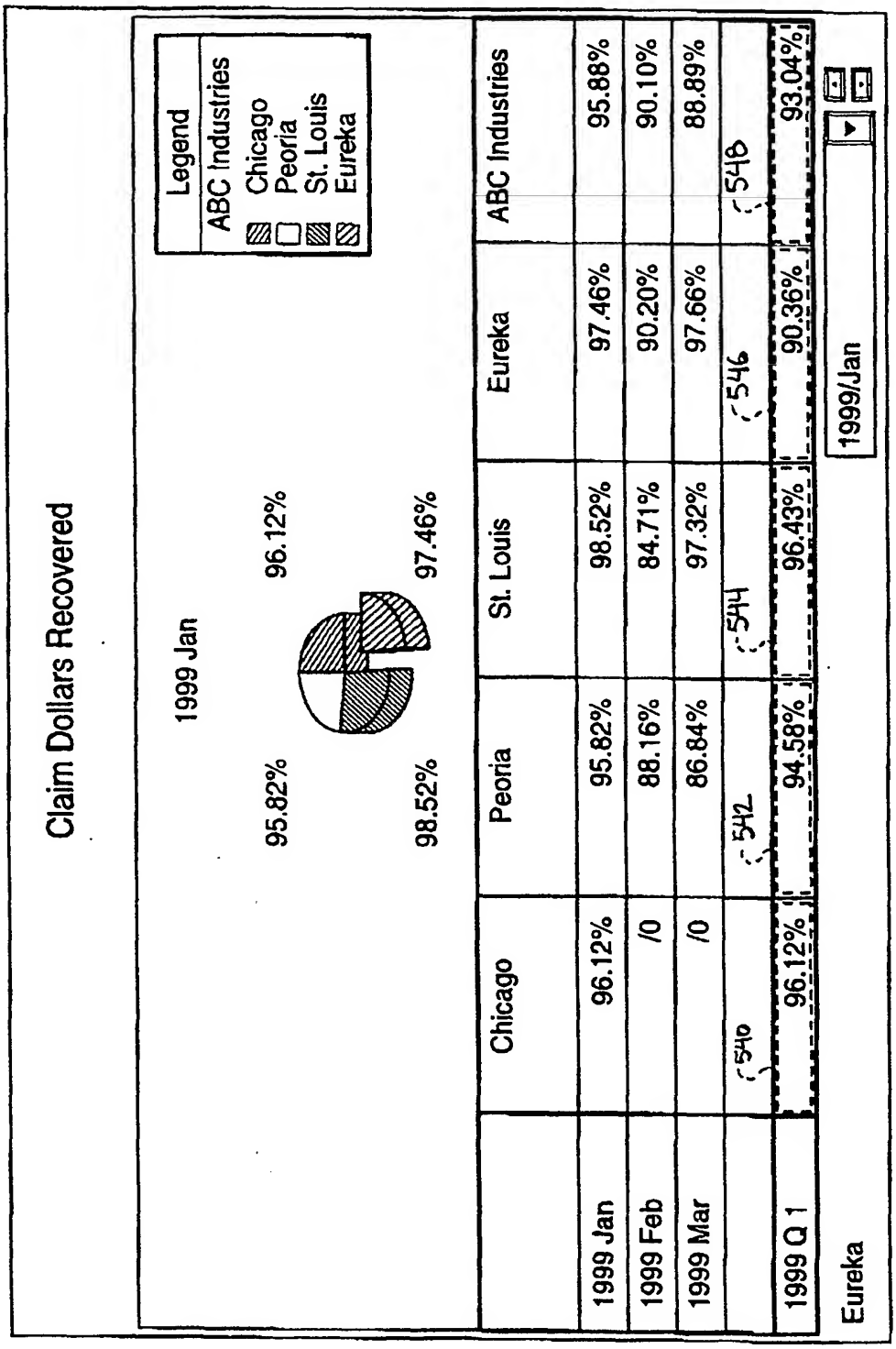

530
Claim Dollars Recovered
1999 Jan
Legend
ABC Industries
Chicago
Peoria
St. Louis
Eureka
95.82%
96.12%
98.52%
97.46%
Chicago
Peoria
St. Louis
Eureka
ABC Industries
1999 Jan
96.12%
95.82%
98.52%
97.46%
95.88%
1999 Feb
/0
88.16%
84.71%
90.20%
90.10%
1999 Mar
/0
86.84%
97.32%
97.66%
88.89%
540
542
544
546
548
1999 Q 1
96.12%
94.58%
96.43%
90.36%
93.04%
Eureka
1999/Jan

Fig-11-

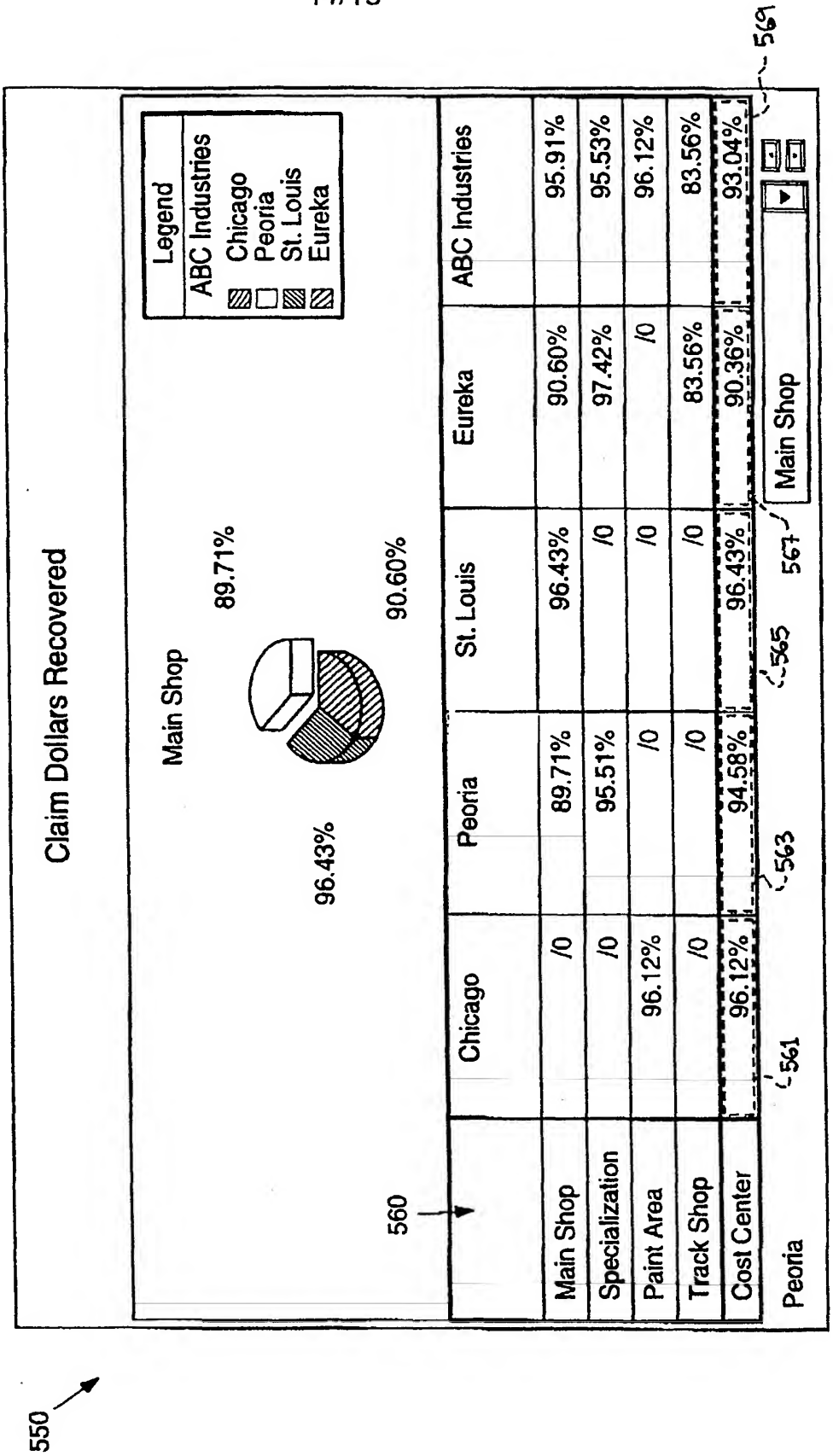

550
Claim Dollars Recovered
Main Shop
89.71%
96.43%
90.60%
Legend
ABC Industries
Chicago
Peoria
St. Louis
Eureka
560
561
563
565
567
569
Main Shop
Peoria
Cost Center
Track Shop
Paint Area
Specialization
Main Shop
Chicago
Peoria
St. Louis
Eureka
ABC Industries
/0
89.71%
96.43%
90.60%
95.91%
/0
95.51%
/0
97.42%
95.53%
96.12%
/0
/0
/0
96.12%
/0
/0
83.56%
83.56%
96.12%
94.58%
96.43%
90.36%
93.04%

FIG-12-

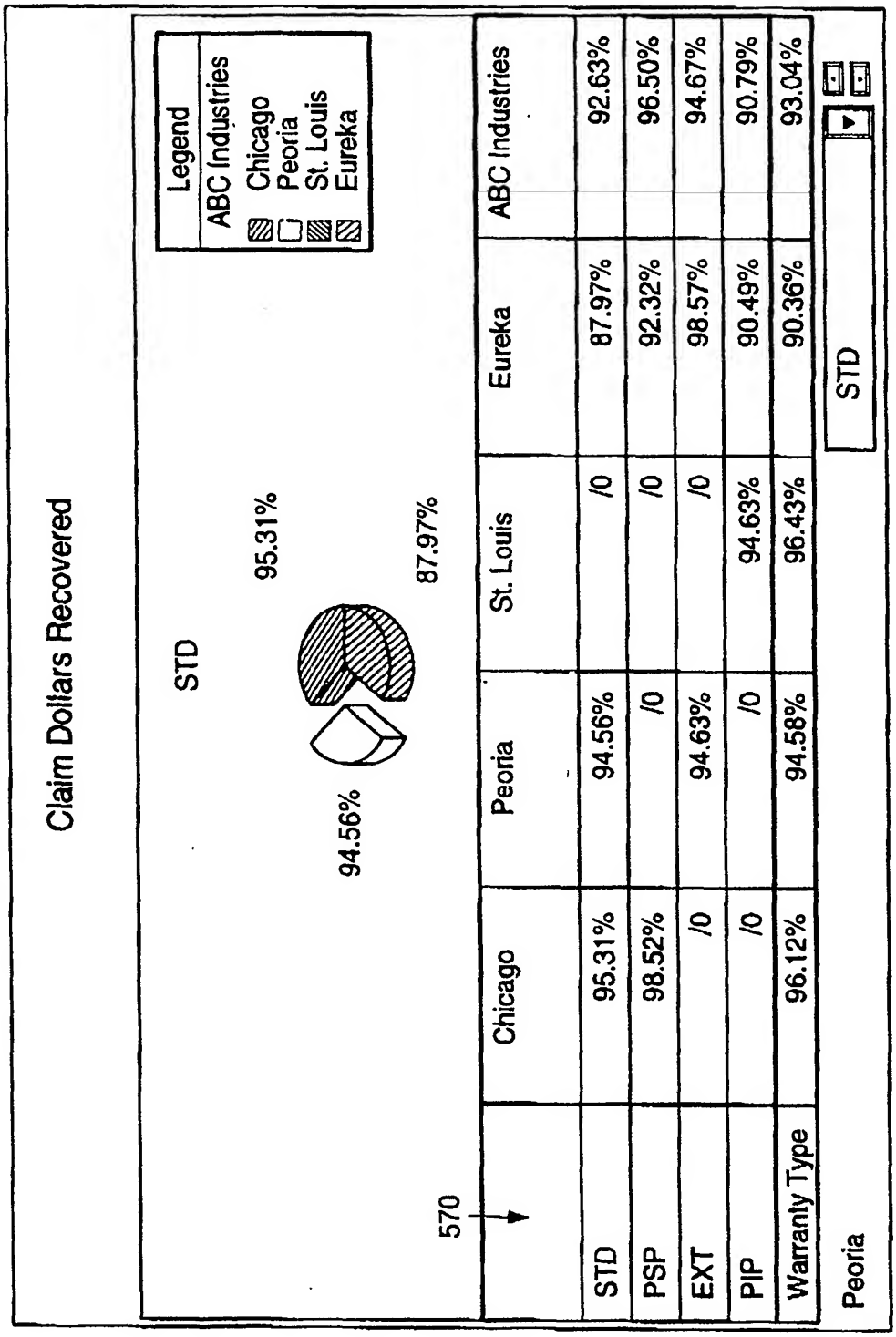

Claim Dollars Recovered
STD
95.31%
94.56%
87.97%
Legend
ABC Industries
Chicago
Peoria
St. Louis
Eureka
570
Chicago
Peoria
St. Louis
Eureka
ABC Industries
STD 95.31% 94.56% /0 87.97% 92.63%
PSP 98.52% /0 /0 92.32% 96.50%
EXT /0 94.63% /0 98.57% 94.67%
PIP /0 /0 94.63% 90.49% 90.79%
Warranty Type 96.12% 94.58% 96.43% 90.36% 93.04%
Peoria
STD

FIG-13-

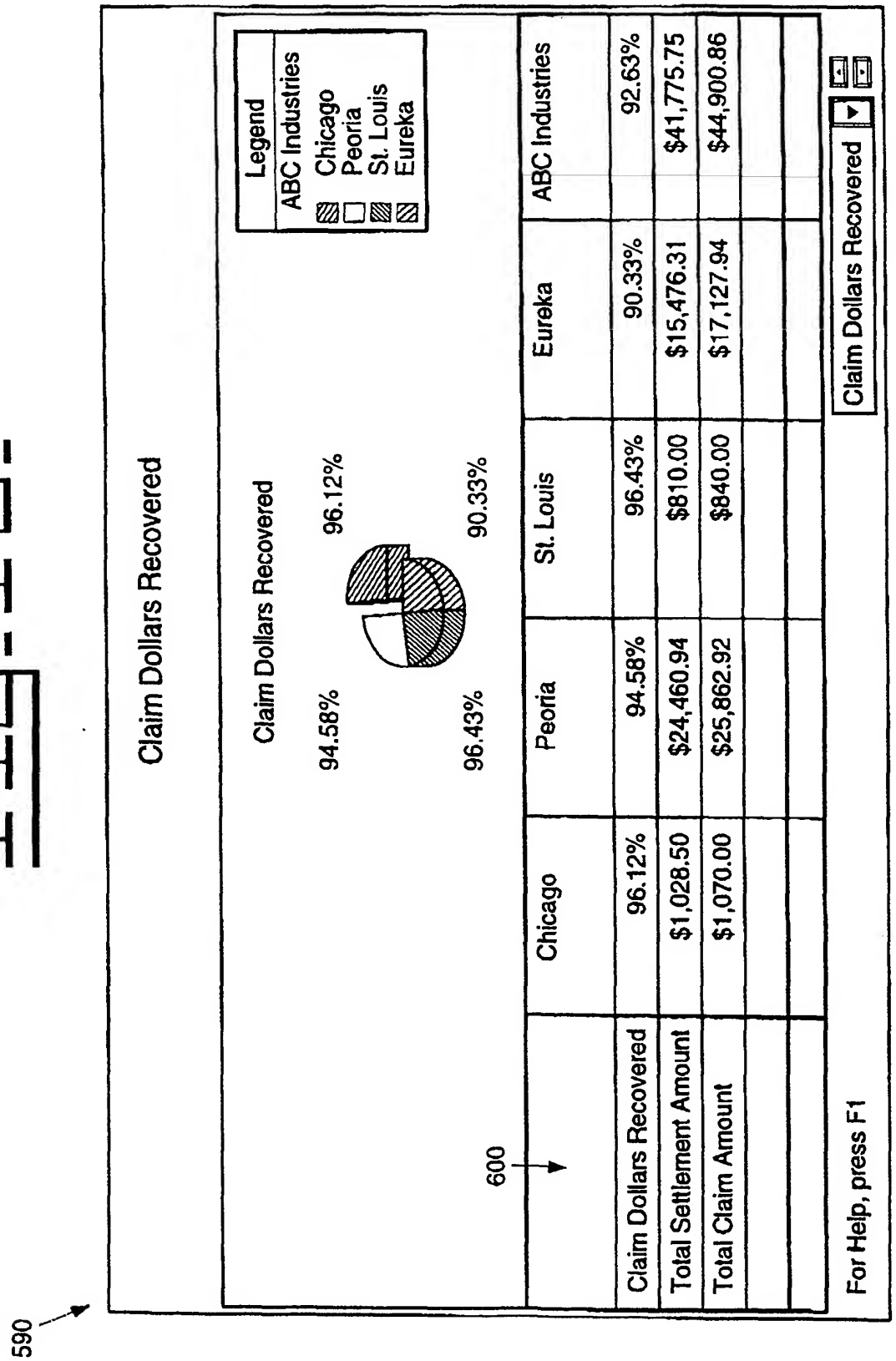

590
Claim Dollars Recovered
Claim Dollars Recovered
Legend
ABC Industries
Chicago
Peoria
St. Louis
Eureka
94.58%
96.12%
96.43%
90.33%
600
Chicago
Peoria
St. Louis
Eureka
ABC Industries
Claim Dollars Recovered
96.12%
94.58%
96.43%
90.33%
92.63%
Total Settlement Amount
$1,028.50
$24,460.94
$810.00
$15,476.31
$41,775.75
Total Claim Amount
$1,070.00
$25,862.92
$840.00
$17,127.94
$44,900.86
For Help, press F1
Claim Dollars Recovered

FIG-14-

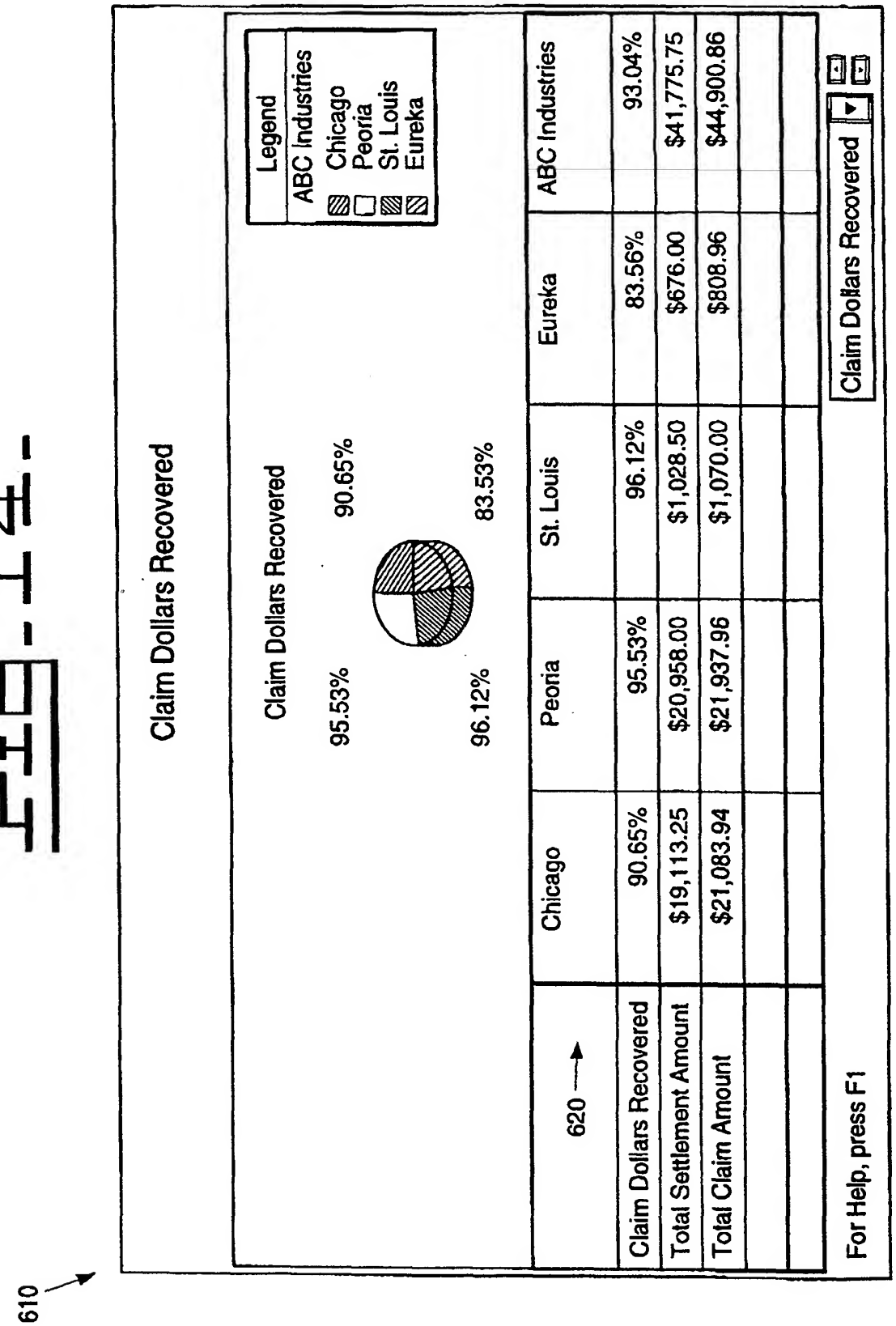
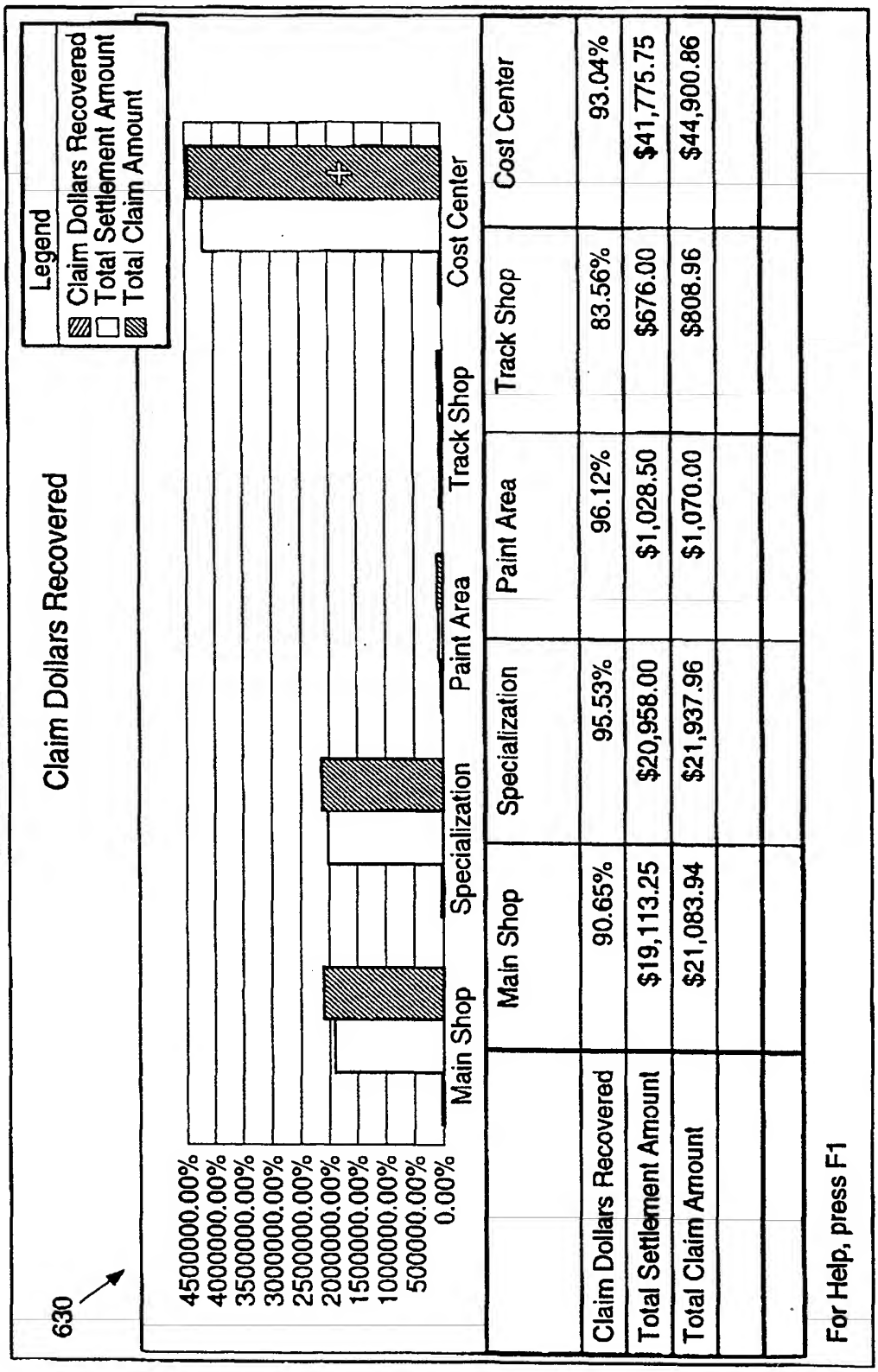

610
Claim Dollars Recovered
Claim Dollars Recovered
95.53%
90.65%
96.12%
83.53%
Legend
ABC Industries
Chicago
Peoria
St. Louis
Eureka
620
Chicago
Peoria
St. Louis
Eureka
ABC Industries
Claim Dollars Recovered
90.65%
95.53%
96.12%
83.56%
93.04%
Total Settlement Amount
$19,113.25
$20,958.00
$1,028.50
$676.00
$41,775.75
Total Claim Amount
$21,083.94
$21,937.96
$1,070.00
$808.96
$44,900.86
Claim Dollars Recovered
For Help, press F1

Fig. 15.



	Main Shop	Specialization	Paint Area	Track Shop	Cost Center
Claim Dollars Recovered	90.65%	95.53%	96.12%	83.56%	93.04%
Total Settlement Amount	$19,113.25	$20,958.00	$1,028.50	$676.00	$41,775.75
Total Claim Amount	$21,083.94	$21,937.96	$1,070.00	$808.96	$44,900.86